

3 (Amended) The method of claim 1, said method comprising the steps of: .

- (a) calculating intermediate abstract representations, necessary for animating the continuity of said transformations, between a starting and an ending representation;
- (b) animating said transformation process by displaying sequentially, in rapid succession, on said display device, said intermediate representations, as is customary in the art of animation, making the transformation appear continuous.

### DRAFT REMARKS

Claims 1-20 were at issue. By this amendment, claims 1-3 were amended and claims 4-20 remain unchanged. No new matter was introduced. Claims 1-20 as modified, are now believed to be in condition for allowance.

#### Section 102 Rejections:

- 1 **Nakayama Does Not Use Animation.** The rejection of claims 1 and 12, is based on the claims of Nakayama who discloses a calculator with stepwise display of linear equations. We respectfully submit that neither the Nakayama claims, nor any part of the disclosures intend the use of "animation" of transformations. Here to "animate" is used in the dictionary definition of "to give life to or make alive." Because living things change continuously, not in discrete steps, "animation" is the simulation of continuous change. Nakayama discloses "...each time an advance key is depressed, process equations, obtained by transforming the equations step by step to reach their answers, are successively displayed..." (Abstract, second sentence, our emphasis.)

From this and from the Nakayama disclosure it is clear that only a stepped display is used and that no animation between steps is intended nor anticipated. Only the successive display of each discrete abstract representation is taught. The transformation from one equation to the next is discrete, not continuous, and therefore not "animated." This is very

different from the current invention, where animation of the transformations is taught. For example, if our invention were implemented in the Nakayama system (in addition to the Nakayama displays) it would display the animation of a continuous transformation from one successive display to the next. The intermediate displays are usually fictitious and are not usually restricted by transformation rules, (though the starting and ending displays are generally governed by transformation rules).

For example, in the process of moving a term from one side of an equation to the other, the Nakayama calculator would display the equation, then in the next step display the equation with the move already completed. In the current invention, the term moves up above the line of the equation, then across to the other side, changing its sign as it crosses above the equals sign. As it lands on the other side, between others terms, these other terms move out of the way.

Such animations, when used in teaching, help the student follow the process more easily, help the student visualize the transformations and so remember the processes involved in the abstract transformations.

We have changed the language of claim 1 to make these distinctions clearer.

- 2 **Nakayama Does Not Use Animation in Teaching.** Rejection of claim 2 is based on Nakayama's claim for the use of his invention in teaching. However, as in claims 1 and 12, Nakayama discloses a calculator with stepwise display of linear equation solutions and does not envision the use of "animation" in teaching. Claim 2 wording has been changed similarly to claim 1, to make this clear.
- 3 **Intermediate Representations of Nakayama not for Animation.** Regarding claims 3 and 13, Nakayama's teaching of calculating the intermediate abstract representations (between

a starting and an ending representation) involves the calculation of the statically displayed representations, intermediate between the entered (statically displayed) equation and the (statically displayed) solution. The calculated intermediate representations of our invention, on the other hand, are needed to simulate the continuity of the transformation between one statically displayed representation and another, by being displayed in rapid succession, thus creating the animation. It is this necessity to calculate the intermediate states for use in animating the display of a continuous transformation that distinguishes our invention from that of Nakayama and others. We have changed the language of claim 3 to make this more clear, together with the already changed claim 1 on which claim 3 depends.

- 4 **Remaining Claim Rejections.** In view of the foregoing, and the changes of wording in claims 1, 2 and 3, applicant respectfully submits that the grounds for the rejection of the remaining dependent claims no longer apply.

**Summary.** Accordingly, applicant submits that none of the references, alone or in combination, anticipate or make obvious the invention as presently claimed. Applicant submits that this case is now in condition for allowance. Therefore, applicant respectfully requests reconsideration and reexamination of the present application and allowance of the case at an early date.

Applicant feels that patentable subject matter is clearly present. If the examiner agrees but does not feel that the present claims, as modified, are technically adequate, applicant respectfully requests that the examiner write acceptable claims pursuant to MPEP 707.07(j).

Respectfully submitted,

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